

# RATHGEBER RESIDENCE

WASTEWATER TREATMENT AND DISPOSAL SYSTEM

683 FISH CREEK ROAD

T-55N R-03W SECTION 24 BOISE MERIDIAN

BONNER COUNTY, IDAHO



625 Best Ave  
Coeur d'Alene, ID 83814

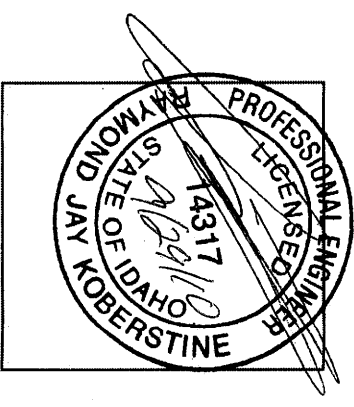
888-809-6778 Toll Free

SEPTEMBER 20, 2010  
VERSION 1.0

## STATEMENT OF PROFESSIONAL ENGINEER

THIS DESIGN REPORT HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION AND REVIEW. R. C. WORST & CO., INC. HAS PROVIDED ILLUSTRATIONS AND MANUFACTURER'S INFORMATION IN SUPPORT OF THIS DESIGN.

RAYMOND JAY KOBERSTINE, P.E.  
R.C. WORST & CO. INC.



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**R.C. Worst co.**  
THE PUMPING SYSTEMS SPECIALISTS

625 Best Ave  
Coeur d'Alene, ID 83814

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DATE

09/20/2010

SCALE

DRAWN BY

JAV

CHECKED BY

RJK

## RATHGEBER RESIDENCE

### SHEET 1 - INDEX

WASTEWATER TREATMENT AND DISPOSAL SYSTEM

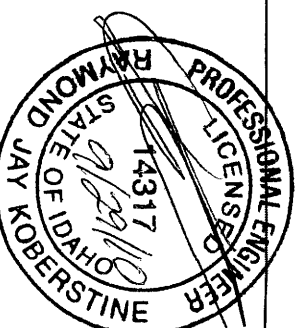
683 FISH CREEK ROAD  
BONNER COUNTY, IDAHO

## GENERAL NOTES:

- A. AS PER THE IDAHO TECHNICAL GUIDANCE MANUAL FOR INDIVIDUAL AND SUBSURFACE SEWAGE DISPOSAL SYSTEM (TGM), ALL EXTENDED TREATMENT SYSTEM MUST BE MAINTAINED ON A BIENNIAL BASIS FOR THE FIRST TWO YEARS AND ANNUALLY THEREAFTER. THE HOME OWNER WILL BE RESPONSIBLE FOR THE O&M COSTS ASSOCIATED WITH THEIR INDIVIDUAL SYSTEM.
- B. IDAHO ONSITE SERVICES INC. WILL BE THE O&M MANAGEMENT COMPANY RESPONSIBLE FOR CONTRACTING WITH AN O&M PROVIDER. EACH HOME OWNER WILL BECOME A MEMBER OF IDAHO ONSITE SERVICE INC. AS A CONDITION OF OWNERSHIP OF THE ADVANTEX SYSTEM AS REQUIRED BY THE STATE OF IDAHO. AN ACCESS EASEMENT MUST BE RECORDED ON EACH PROPERTY TITLE TO INSURE O&M TO MEET THE REQUIREMENTS OUTLINED IN THE TGM.
- C. EXTENDED TREATMENT SYSTEMS CAN BE DISRUPTED BY TOXINS, CHEMICALS, FATS, OILS, GREASES, AND PHARMACEUTICALS DISCHARGED INTO THE SEPTIC SYSTEM. THIS PRACTICE IS PROHIBITED AND THE COST OF ANY REPAIR RESULTING FROM IMPROPER USE OF THE SYSTEM WILL BE THE RESPONSIBILITY OF THE OWNER.
- D. ALL DRIP SYSTEM COMPONENTS WILL BE INSPECTED AND MAINTAINED DURING THE REQUIRED VISIT FOR THE EXTENDED TREATMENT PACKAGE AS OUTLINED ABOVE. THE MAINTENANCE WILL BE PERFORMED BY THE MAINTENANCE PROVIDER CONTRACTED WITH IDAHO ONSITE SERVICES INC. AND ALL DRIP SYSTEM DATA AND FINDINGS WILL BE PROVIDED IN ADDITION TO EACH TREATMENT PACKAGE REPORT.

## CONSTRUCTION NOTES AND SPECIFICATIONS:

- A. THE CONTRACTOR SHALL NOT PERFORM WORK WITHOUT INSPECTION WHERE INSPECTIONS ARE REQUIRED.
- B. REQUESTS BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE DESIGN ENGINEER AND PANDHANDLE HEALTH DISTRICT AND/OR DEQ BEFORE THE CHANGES ARE IMPLEMENTED.
- C. WHEN PERFORMING EXCAVATIONS, OR INSTALLATION OF ANY WASTEWATER DISPOSAL EQUIPMENT, THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF THE IDAHO TGM.
- D. THE CONTRACTOR SHALL CALL THE "ONE CALL" UTILITY LOCATION NUMBER FOR FIELD LOCATION BEFORE EXCAVATION.
- E. CONTRACTOR SHALL FIELD VERIFY UNDERGROUND UTILITIES DURING THE CONSTRUCTION PERIOD. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE REPAIR OF ANY UNDERGROUND UTILITIES DAMAGED BY THE CONTRACTORS WORK.
- F. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL MEET WITH THE DESIGN ENGINEER, DEQ, THE OWNER(S), OPERATION AND MAINTENANCE PROVIDER, AND ADVANTEX DEALER TO DISCUSS THE CONSTRUCTION PROCESS.
- G. CONTRACTOR SHALL PROVIDE THE DESIGN ENGINEER WITH PHOTOGRAPHS TO DOCUMENT STAGES OF THE INSTALLATION
- H. ALL CONSTRUCTION SHALL CONFORM TO REQUIREMENTS SET FORTH BY THE TGM, AS WELL AS THE UNIFORM PLUMBING CODE, UNIFORM ELECTRICAL CODE, AND THE PROJECT SPECIFICATION, WHENEVER THERE IS A CONFLICT BETWEEN THESE REQUIREMENTS, THE MOST STRINGENT SHALL APPLY.
- I. ALL PRESSURE SEWER PIPE SHALL BE SCHEDULE 40 OR 80 PVC OR CLASS 200 HDPE PRESSURE PIPE, UNLESS OTHERWISE NOTED ON PLANS.
- J. ALL PUMPS, EFFLUENT SCREENS, AND TREATMENT SYSTEMS SHALL BE MANUFACTURED BY ORENCO SYSTEMS INC.
- K. ALL SEPTIC AND DOSE TANKS CONSTRUCTED OF FIBERGLASS REINFORCED POLYESTER WILL BE PRETESTED AND CERTIFIED 100% WATERTIGHT AND MUST BE EITHER ORENCO OR XEXXES BRANDS. ALL SEPTIC AND DOSE TANKS CONSTRUCTED OF CONCRETE MUST USE SELF CONSOLIDATING CONCRETE IN A MONOLITHIC POUR, MEET A COMPRESSIVE STRENGTH EXCEEDING 6000 PSI AND MUST BE PROVIDED BY WILBERT PRECAST. ONCE INSTALLED, THE TANKS MUST BE TESTED OR RE-TESTED FOR WATERTIGHTNESS BY FILLING EACH TANK 4" INTO ITS RISER AND DOCUMENTING NO MEASURABLE DROP IN WATER LEVEL OVER A 24 HOUR PERIOD.
- L. ALL EQUIPMENT MUST BE PROVIDED BY AND INSTALLED BY R.C. WORST & CO., INC. OR A DESIGNATED REPRESENTATIVE.
- M. THE HOME(S) ATTACHED TO THIS SYSTEM MUST BE LIMITED TO SPECIFIED NUMBER OF BEDROOMS OR SQUARE FOOTAGE, (WHICHEVER DEMANDS A LARGER FLOW RATE) AS DEFINED BY THE TGM.
- N. PIPING AND DRAIN FIELD EASEMENT DOCUMENTS MUST BE PROPERLY PREPARED AS REQUIRED BY THE PERMITTING PROCESS.
- O. ALL DRIP LINES MUST BE INSTALLED WITH AN AIR VACUUM RELEASE VALVE LOCATED AT THE HIGH POINT IN EACH LATERAL RUN. ONE AIRVACUUM RELEASE VALVE MAY BE USED WITH A COMMON RETURN MANIFOLD INSTALLED AT THE DISTAL END OF THE LATERAL RUNS.
- P. EACH DRIP LATERAL MUST BE INSTALLED TO DRAIN BACK TO THE SUPPLY OR RETURN MANIFOLD TRENCH.
- Q. BOTH DRIP MANIFOLDS MUST BE INSTALLED BELOW THE DRIP LATERAL BURY DEPTH AND EVENLY GRADED BACK TO THE DOSE TANK AREA. THE DOSE TANK MUST THEREFORE BE INSTALLED BELOW THE DRIP FIELD AND REPLACEMENT FIELD.
- R. THE DRIP FIELD MUST BE INSTALLED USING A SPECIAL DRIP TUBING INSERTION TOOL. - THE DRIP TUBING CANNOT BE PULLED IN. PLEASE CONTACT R.C. WORST & CO. INC. FOR DETAILS.
- S. THE DRIP FIELD AND REPLACEMENT AREAS CANNOT BE DRIVEN ON BY HEAVY EQUIPMENT BEFORE, DURING, OR AFTER THE SYSTEM HAS BEEN INSTALLED.
- T. HORSE AND LIVESTOCK TRAFFIC ARE PROHIBITED ON THE FIELD AT ANY TIME.



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CHECKED BY  
RJK

**RATHGEBER RESIDENCE**  
SHEET 2 - CONSTRUCTION NOTES  
WASTEWATER TREATMENT AND DISPOSAL SYSTEM

683 FISH CREEK ROAD  
BONNER COUNTY, IDAHO

## DESIGN NOTES

### SEPTIC PERMIT INFORMATION

SEPTIC PERMIT NUMBER: 09-09-119526

AVAILABLE AT:

PANHANDLE HEALTH DISTRICT

322 MARION

SANDPOINT, IDAHO 83864

(208) 265-6384

EHS: ANNETTE DUEROCK

DATE ISSUED: 04/01/2010

CLARIFICATIONS DATED: 05/11/2010, 05/28/2010, 8/04/2010

SOIL LOADING RATE:  $0.45 \frac{\text{GPD}}{\text{SqFT}}$

DRAINFIELD REQUIRED: DRIP DISTRIBUTION

**ALL PROVISIONS AND/OR RESTRICTIONS OUTLINED IN THE ONSITE SEWAGE  
SYSTEM PERMIT MUST BE ADHERED TO.**

### DESIGN FLOWS

1 (ONE), THREE (3) BEDROOM HOME @ 250 GPD

1 (ONE), ONE (1) BEDROOM HOME @ 150 GPD

ADDITIONAL DOMESTIC FLOWS OF 100GPD FROM ABOVE PROPOSED STRUCTURES

QTGM = 500 GPD

### DRIP FIELD SIZING

SOIL TYPE: B-2; PER HEALTH DISTRICT SITE EVALUATION (09-09-119526)

DESIGN DAILY FLOW: 500 GPD

SOIL LOADING RATE:  $0.45 \frac{\text{GPD}}{\text{SqFT}}$

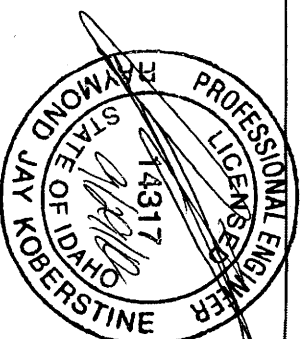
REQUIRED MINIMUM DRIP FIELD AREA: 1112 FT<sup>2</sup>

PROPOSED DRIP FIELD AREA: 1128 FT<sup>2</sup> PRIMARY; 1120 FT<sup>2</sup> SECONDARY

## ENGINEERING SCOPE

FEATURES AND THIER LOCATIONS (INCLUDING BUT NOT LIMITED TO PROPERTY BOUNDARIES, EASEMENTS, ROADS, WELL LOCATION, RESIDENCE LOCATION, ETC.) NOT SPECIFIC TO WASTEWATER TREATMENT AND DISPOSAL SYSTEM AS DESCRIBED HEREIN (SUCH AS DRAINFIELD LOADING RATES AND DIMENSIONS, PROXIMITY TO TEST HOLES, TREATMENT UNIT LOADING RATES, TANK SIZING, PUMP PERFORMANCE, FLOAT AND PANEL TIMER SETTINGS, ETC) ARE NOT INCLUDED IN THE ENGINEERING APPROVAL AS ATTACHED TO THIS DOCUMENT.

THIS INFORMATION IS FOR ILLUSTRATIVE PURPOSES ONLY AND HAS BEEN COMPILED USING DOCUMENTS SUPPLIED BY CONTRACTORS, LANDOWNERS, AND THE RESIDING HEALTH DISTRICT. THE ACCURACY OF THESE DOCUMENTS HAS NOT BEEN VERIFIED.



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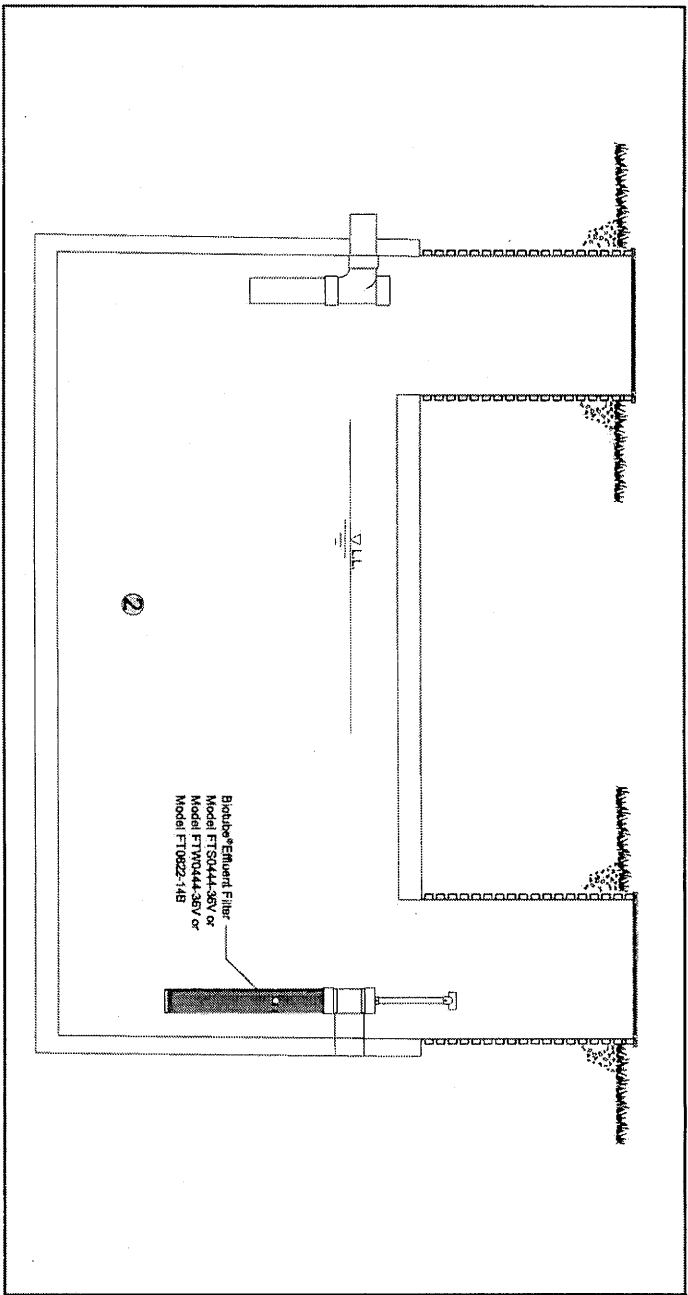
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## RATHGEBER RESIDENCE

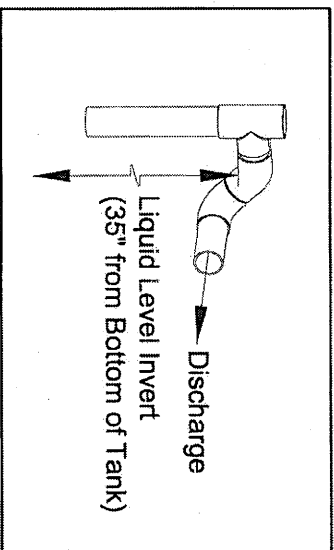
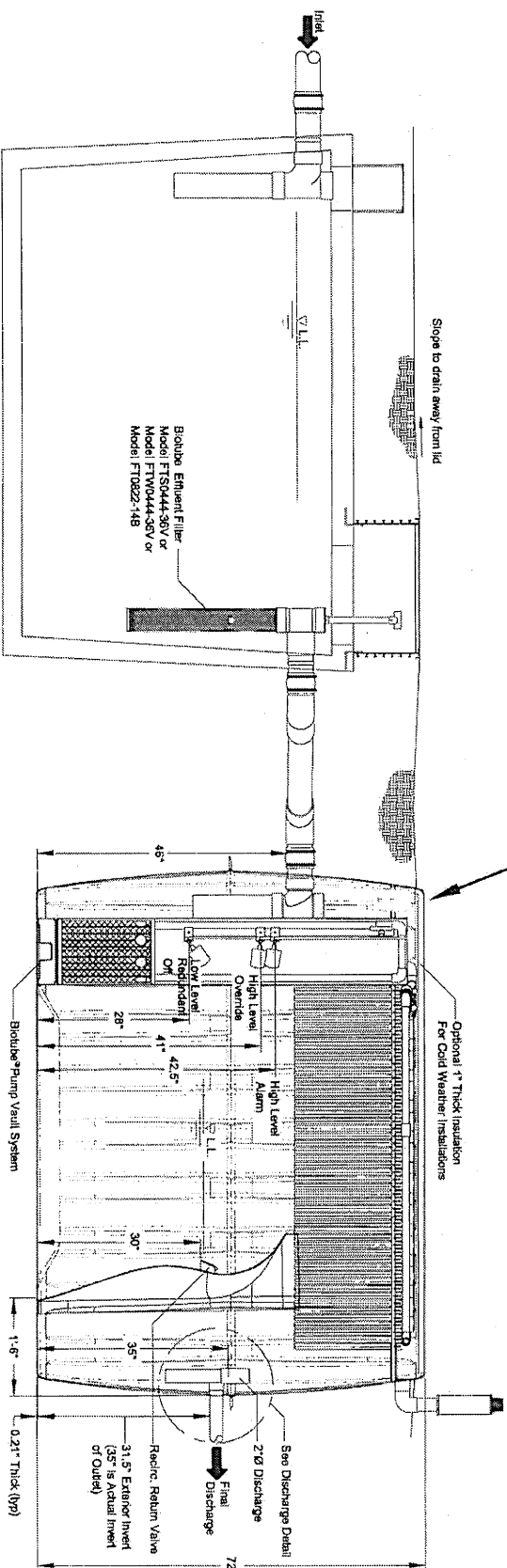
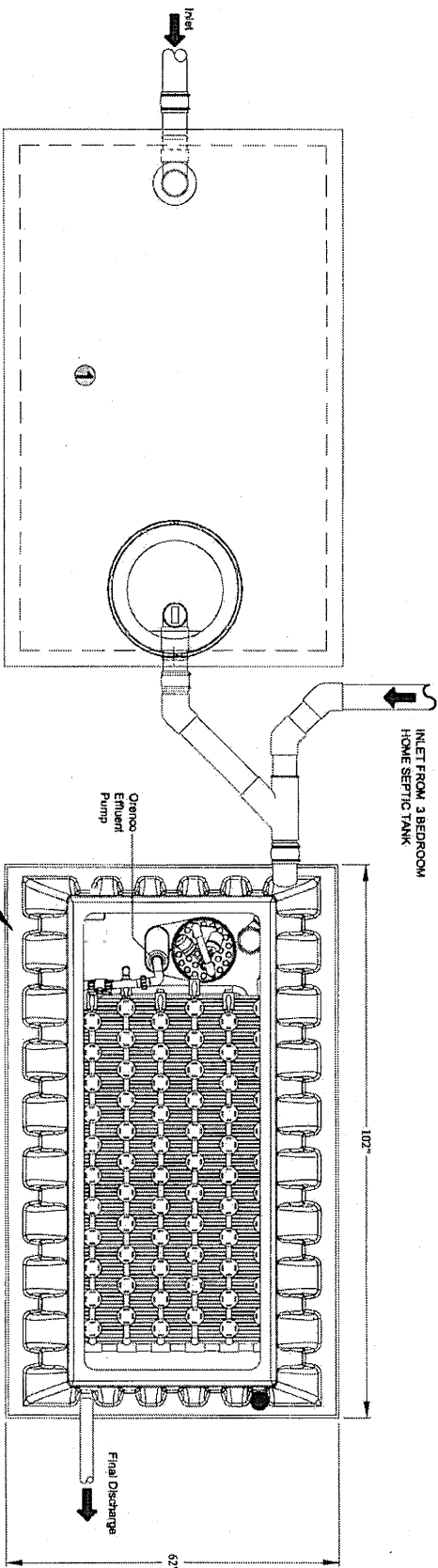
### SHEET 3 - DESIGN NOTES

WASTEWATER TREATMENT AND DISPOSAL SYSTEM

683 FISH CREEK ROAD  
BONNER COUNTY, IDAHO



- ### GENERAL NOTES
- EXISTING CABIN:  
WILBERT PRECAST 1604M - OR APPROVED EQUAL  
1000 GAL SINGLE COMP. CONCRETE SEPTIC TANK
  - PROPOSED 3 BEDROOM HOME:  
WILBERT PRECAST 1611M - OR APPROVED EQUAL  
1500 GAL SINGLE COMP. CONCRETE SEPTIC TANK
  - ORENCO ADVANTEX AX20-RT A2  
- NO APPROVED EQUALS



**DISCHARGE DETAIL**  
NTS

### ADVANTEX ETIPS - PERFORMANCE EXPECTATIONS

#### RAW INFLUENT QUALITY

NOTE: RANGES TAKEN FROM TABLE 3.7 USEPA ON-SITE WASTEWATER TREATMENT SYSTEMS MANUAL - FEB 2002  
BOD: 155 - 286 mg/L  
TSS: 155 - 330 mg/L  
TN: 26 - 75 mg/L  
FOG: 70 - 105 mg/L

#### EXPECTED EFFLUENT QUALITY

NOTE: BASED ON IDAHO TGM MINIMUM STANDARDS FOR EXTENDED TREATMENT PACKAGE SYSTEM COMPLIANCE  
BOD: 530 mg/L  
TSS: 530 mg/L  
TKN: 545 mg/L - CONSTITUENT REDUCTION NOT REQUIRED FOR COMPLIANCE

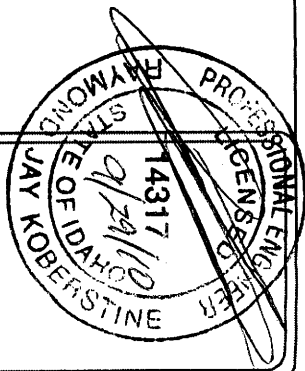
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3/8" = 1'  
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**RATHGEBER RESIDENCE**  
SHEET 4 - TREATMENT SYSTEM DETAIL  
WASTEWATER TREATMENT AND DISPOSAL SYSTEM  
683 FISH CREEK ROAD  
BONNER COUNTY, IDAHO

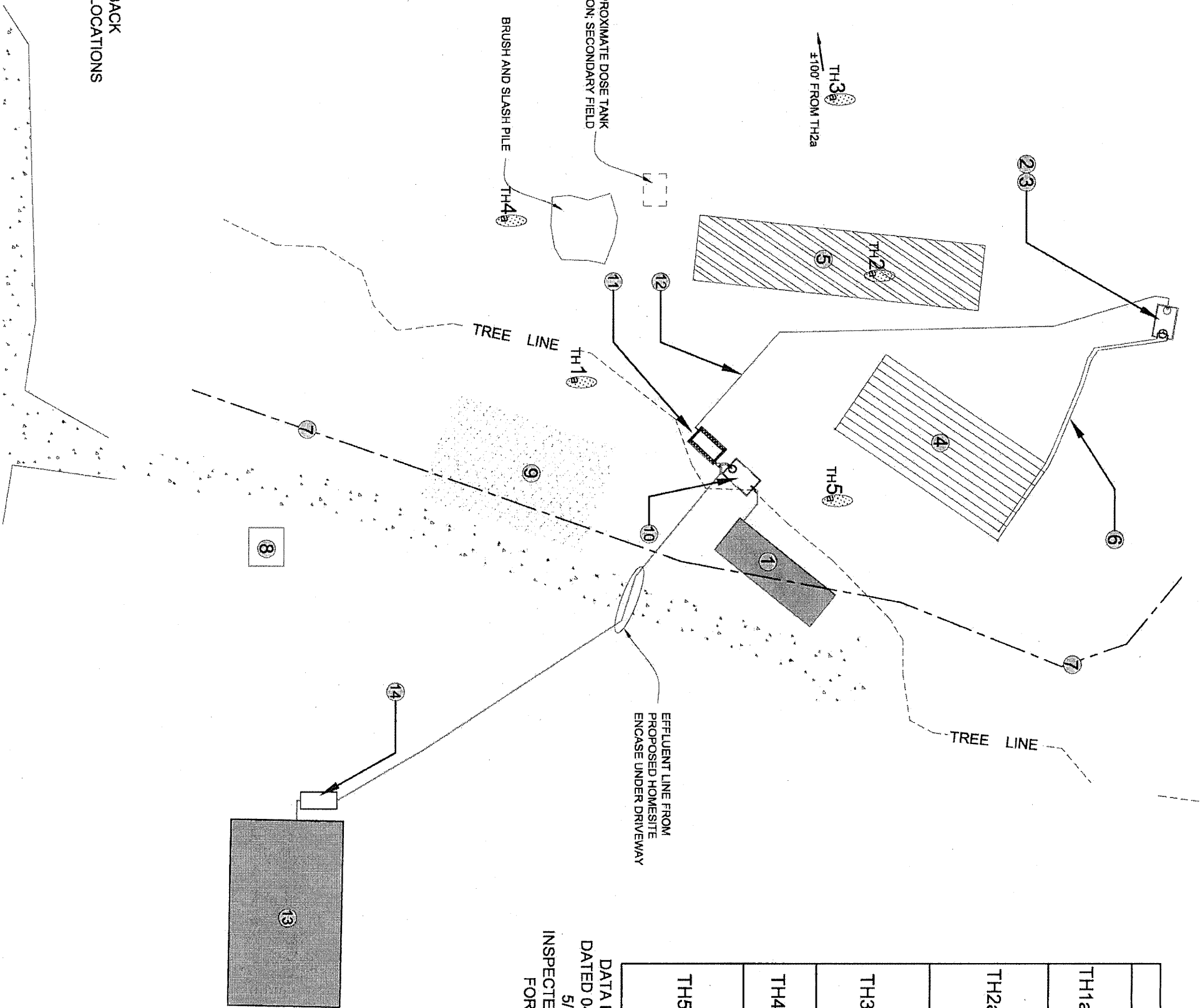


GENERAL NOTES

- EXISTING 1 BEDROOM CABIN  
APPROXIMATE LOCATION
- DRIP FIELD DOSE PUMP SYSTEM  
DRIP HEADWORKS ASSEMBLY  
- SEE SHEET 7 FOR DETAILS
- WILBERT PRECAST 1604M  
1000 GALLON CONCRETE DOSE TANK
- PRIMARY DRIP FIELD LOCATION (1128 FT<sup>2</sup>)
- SECONDARY DRIP FIELD LOCATION (1120 FT<sup>2</sup>)  
- NOT INSTALLED, UNDISTURBED
- 1.25" DRIP FIELD SUPPLY MANIFOLD  
1.00" DRIP FIELD RETURN MANIFOLD  
- SCH40 PVC PIPE AND FITTINGS
- 200' SETBACK - SEASONAL CREEK  
MEANDER LINE; APPROXIMATE LOCATION
- EXISTING CISTERN
- BUILDING PAD FOR PROPOSED SHOP
- CABIN SEPTIC TANK LOCATION  
- WILBERT PRECAST 1604M, 1000 GALLON
- ORENCO AX20RT-A2 LOCATION
- 2" GRAVITY LINE TO DRIP DOSE TANK  
- USE AX20RT-B2 IF GRAVITY DISCHARGE  
IS NOT ATTAINABLE
- PROPOSED 3 BEDROOM HOME SITE
- HOME SITE SEPTIC TANK LOCATION  
- WILBERT PRECAST 1611M, 1500 GALLON

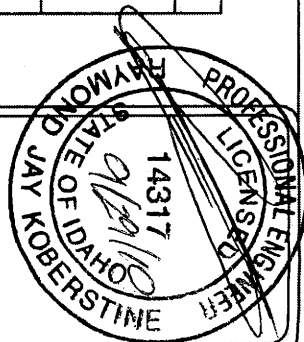
INSTALLERS NOTE:

- WELL LOCATION MUST PROVIDE FOR MINIMUM SETBACK  
FROM SEPTIC TANKS OF 50' AND FROM DRIP FIELD LOCATIONS  
OF 100'.



TEST HOLE DATA	
TH1a	0'-48" SAND CLAY LOAM 12" MOTTLING 24" HEAVY MOTTLING
TH2a	0'-16" SILT LOAM 16'-32" SAND LOAM 32'-55" SAND CLAY LOAM 55" WATER ENTRY
TH3a	0'-18" SILT LOAM 18'-55" SAND CLAY LOAM 55" WATER ENTRY HEAVY MOTTLING
TH4a	SAME AS TH3a 14" WATER ENTRY
TH5a	0'-16" SILT LOAM 16'-48" SAND CLAY LOAM 48'-52" DECOMP SHALE 30" HEAVY MOTTLING

DATA FROM SITE EVALUATION 09-09-119526  
DATED 04/01/2010 WITH CLARIFICATIONS DATED  
5/11/2010, 5/28/2010, AND 8/04/2010  
INSPECTED BY: ANDY PERRY, ANNETTE DUEROCK  
FOR DRIP FIELD DETAILS SEE SHEET 5

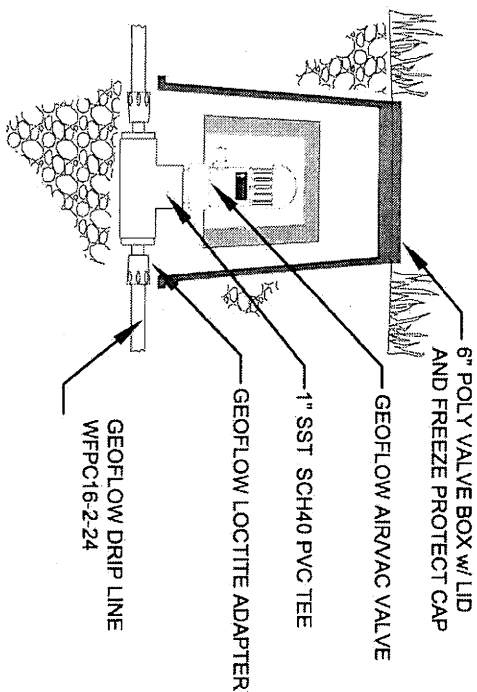


RATHGEBER RESIDENCE  
SHEET 5 - SITE PLAN  
WASTEWATER TREATMENT AND DISPOSAL SYSTEM  
683 FISH CREEK ROAD  
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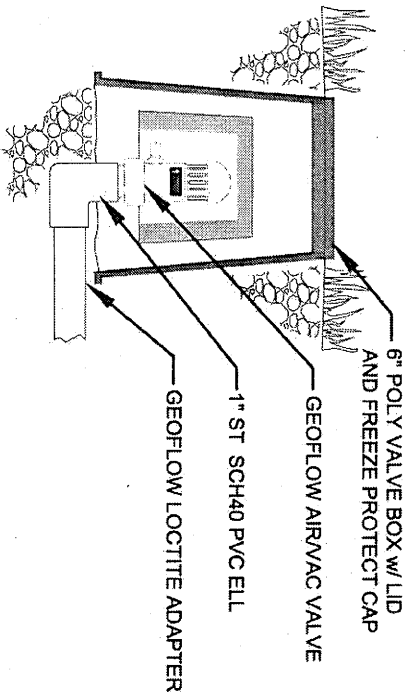
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CHECKED BY	RJK

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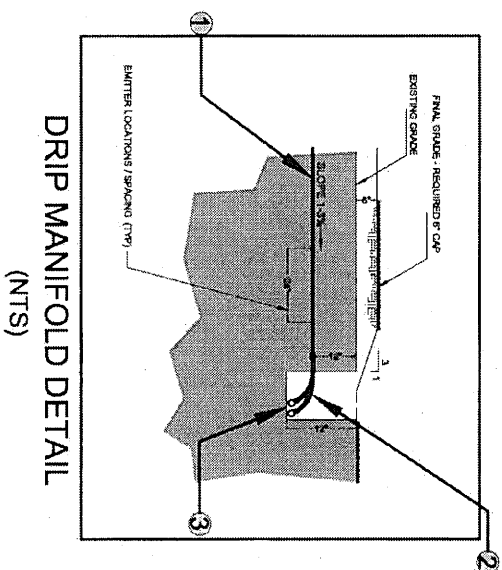
LATERAL AIRVAC RELEASE



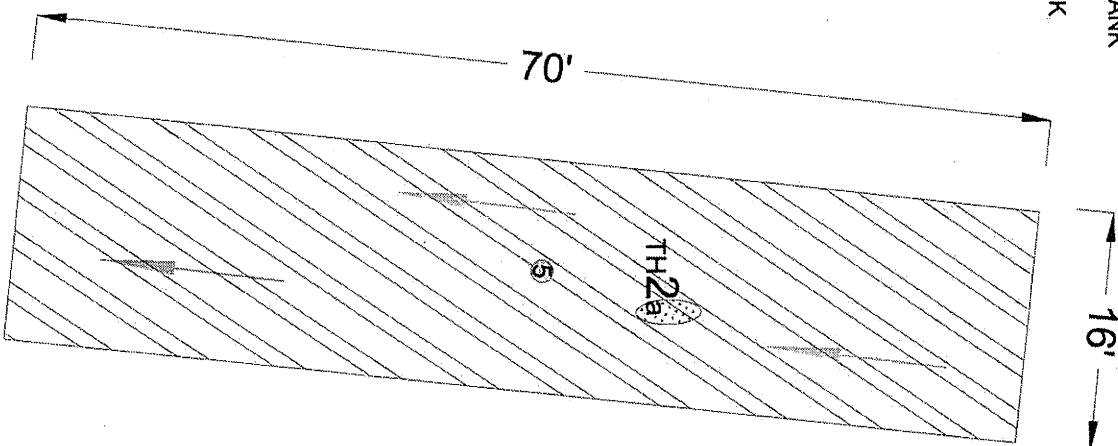
COMMON LATERAL AIRVAC RELEASE  
MANIFOLD AIRVAC RELEASE

GENERAL NOTES

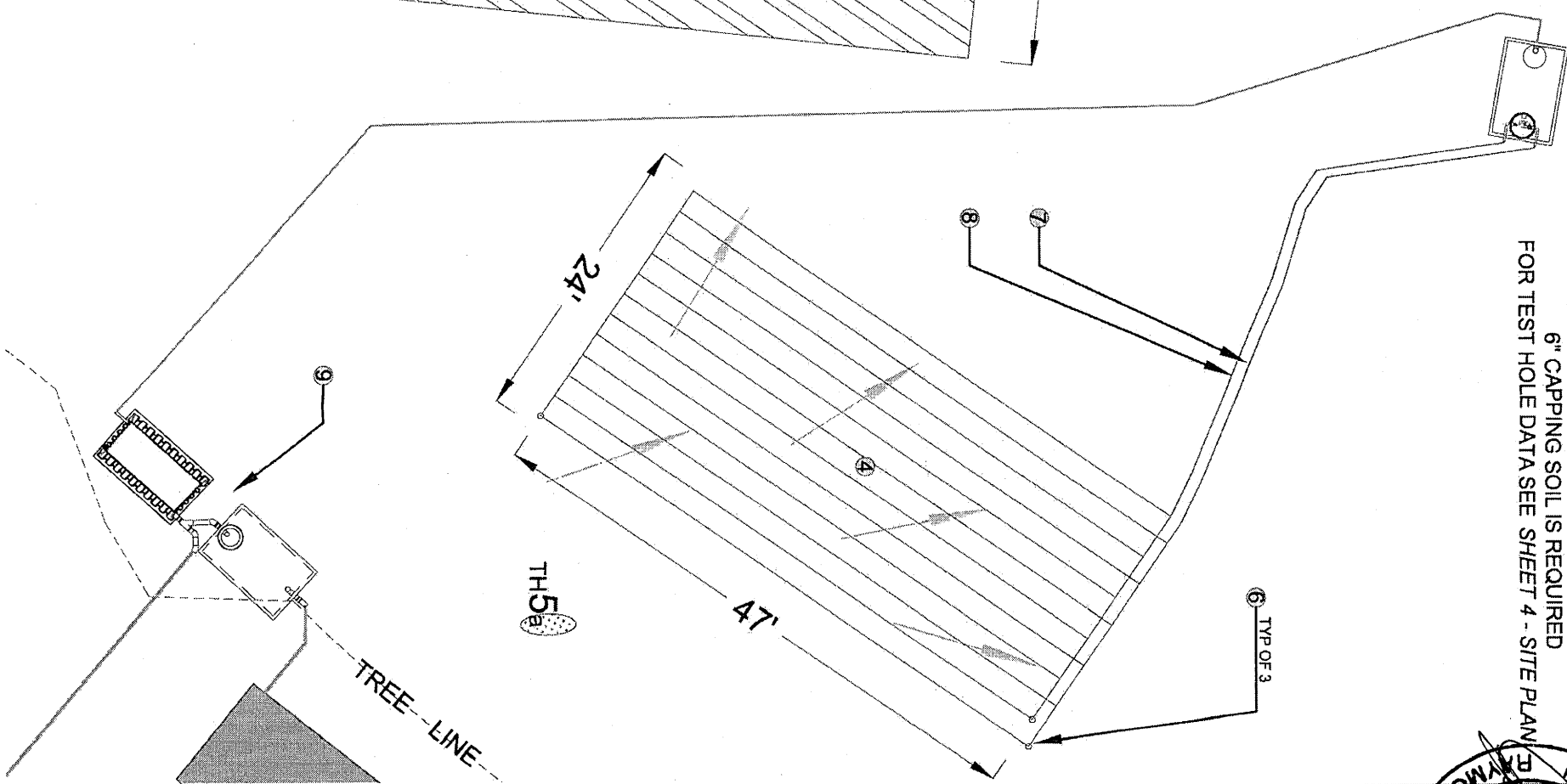
- ① GEOFLOW DRIP LINE - W/PC16-2-24  
-0.53 GPH FLOW RATE PER EMITTER  
-276 EMITTERS ON 2' SPACING  
-552 LINEAR FEET TUBING - 2' ON CENTER SEPARATION
- ② PVC FLEX HOSE - 3/4"
- ③ SUPPLY AND RETURN MANIFOLD  
INSTALLED IN SAME DITCH - 18"-24" BURY
- ④ PRIMARY DRIP FIELD LOCATION (1128 FT<sup>2</sup>)
- ⑤ SECONDARY DRIP FIELD LOCATION (1120 FT<sup>2</sup>)  
- NOT INSTALLED, UNDISTURBED
- ⑥ AIRVAC RELEASE VALVES - 3 REQUIRED  
- END/HIGH POINT 3/4" AIRVAC MANIFOLD  
- TERMINAL END SUPPLY/ RETURN MANIFOLD LINES
- ⑦ 1.25" SUPPLY MANIFOLD/ PIPING FROM DOSING TANK
- ⑧ 1.00" RETURN MANIFOLD/ PIPING TO DOSING TANK
- ⑨ PRIMARY SEPTIC TANK LOCATION  
- WILBERT PRECAST 1638, 2K GALLON  
ORENCO AX20RT-A1 LOCATION



DRIP MANIFOLD DETAIL  
(NTS)



DRIP TUBING MUST BE INSERTED AT 12" DEPTH  
6" CAPPING SOIL IS REQUIRED  
FOR TEST HOLE DATA SEE SHEET 4 - SITE PLAN



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**RATHGEBER RESIDENCE**  
SHEET 6 - DRIP FIELD DETAILS  
WASTEWATER TREATMENT AND DISPOSAL SYSTEM  
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